

NETGEAR[®]

12 PORT

10/100/1000 Mbps

Managed Fiber Switch

Installation Guide

MODEL

GSM 712

MODEL

GSM 712F



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Federal Office for Telecommunications Approvals has been notified of the placing of this equipment on the market and has been granted the right to test the series for compliance with the regulations.

Voluntary Control Council for Interference (VCCI) Statement

This equipment is in the first category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines that are aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when this equipment is used in a residential area or in an adjacent area thereto, radio interference may be caused to equipment such as radios and TV receivers.

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

This device may not cause harmful interference.

This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

EN 55 022 Declaration of Conformance

This is to certify that the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55024 Class A (CISPR 22).

EN 55 022 and EN 55 024 Statements

This is to certify that the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch is shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class A (CISPR 22) and EN 55 024.



Warning: This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take appropriate measures.

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (NETGEAR Model GSM712/GSM712F Managed Gigabit Switch) do not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (NETGEAR Model GSM712/GSM712F Managed Gigabit Switch) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada.

Customer Support

For assistance with installing and configuring your NETGEAR system or with questions or problems following installation:

- Check the NETGEAR Web page at <http://www.NETGEAR.com>.
- Call Technical Support in North America at 1-888-NETGEAR. If you are outside North America, please refer to the phone numbers listed on the Support Information Card that shipped with your switch.
- Email Technical Support at support@NETGEAR.com.

Defective or damaged merchandise can be returned to your point-of-purchase representative.

Internet/World Wide Web

NETGEAR maintains a World Wide Web home page that you can access at the uniform resource locator (URL) <http://www.NETGEAR.com>. A direct connection to the Internet and a Web browser such as Internet Explorer or Netscape are required.

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CHAPTER 1: INTRODUCTION

Congratulations on your purchase of the NETGEAR Model GSM712/GSM712F Managed Gigabit Ethernet Switch! Your NETGEAR Switch is a state-of-the-art, high-performance, IEEE-compliant network solution designed for users who want the power of management to eliminate bottlenecks, boost performance, and increase productivity running over the maximum possible bandwidth. In addition to providing easy, straightforward management, your switch (GSM712) is flexible and comes with two Gigabit Interface Converter (GBIC) OR your switch (GSM712F) is flexible and comes with four combo (GBIC/GTP) ports that can use any GBIC module to provide Gigabit connectivity over a variety of fiber or copper cabling.

This chapter serves as the introduction for using your NETGEAR GSM712/GSM712F Managed Gigabit Switch and provides the following information:

- Overview
- Switch Features
- Package Contents

Overview

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch provides the benefit of management with a complete package of features for the observation, configuration, and control of your network. With a web-based Graphical User Interface (GUI), the switch's many capabilities can be viewed and used in a simple and intuitive manner. For those who prefer a more traditional interface, there is a Command Menu Interface available through the console port on the front or via Telenet. The switch's management features include SNMP and RMON for port and switch information, VLAN for traffic control, port trunking for increased bandwidth, and Class of Service (CoS) for traffic prioritization. These features and more will allow you to better understand and better control your network.

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch also provides GBIC module bays. The GBIC module bays will accept any standard GBIC module, including the AGM721F 1000BASE-SX module or AGM721T 1000BASE-T module from NETGEAR. Using these Gigabit ports, you can create high-speed connections to a server or network backbone. For example, you can:

- Connect switches to each other with long distance, high-speed links
- Combine fiber and copper networks

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch can operate free-standing, or rack mounted in a wiring closet or equipment room. It is IEEE-compliant and offers low latency for high-speed networking. GSM712 includes 10 auto-sensing 10/100/1000 Ethernet/Fast Ethernet/Gigabit Ethernet ports, and GSM712F includes 8 GBIC and 4 Combo (GBIC/GTP). The 10/100/1000 Mbps ports are shielded RJ-45 ports that automatically negotiate to the highest speed. This capability makes the switch ideal for environments that have a mix of Ethernet, Fast Ethernet, and Gigabit Ethernet devices. In addition, all 10/100/1000 Mbps ports operate in half- or full-duplex mode. The maximum segment length is 328 feet (100 meters) over Category 5 unshielded twisted-pair (UTP) cable.

Features

The following list identifies the key features of the NETGEAR Model GSM712 Managed Gigabit Switch.

- Ten 10/100/1000 Mbps auto sensing Gigabit Ethernet switching RJ-45 ports
- Two GBIC ports that can be used for a variety of fiber or copper connections

The following list identifies the key features of the NETGEAR Model GSM712F Managed Gigabit Switch.

- Eight Fiber Slots
- Four combo GBIC slots/ GTP ports that can be used for a variety of fiber or copper connections

Both GSM712/712F have the same features as below:

- Full Layer 2 switch management including:
 - SNMP
 - RMON (groups 1,2,3 and 9)
 - IEEE 802.1Q (up to 64 Static VLAN groups)
 - IEEE 802.1p (Class of Service)
 - IEEE 802.3ad (Link Aggregation)
 - IEEE 802.1D (Spanning Tree)
 - IGMP snooping
 - Port Mirroring
 - Password access control
 - TFTP firmware upgrade
 - Multiple interfaces: Browser-based, Telnet, or SNMP application
- Full compatibility with IEEE standards:
 - IEEE 802.3i, (10BASE-T)
 - IEEE 802.3u (100BASE-TX)
 - IEEE 802.3ab (1000BASE-T)
 - IEEE 802.3x (full-duplex flow control)
- Auto-sensing and auto-negotiating capabilities for all ports
- Auto Uplink™ on all ports to make the right connection
- Automatic address learning function to build the packet-forwarding information table. The table contains up to 8,000 media access control (MAC) addresses (that is, the switch can support networks with as many as 8,000 devices).
- Full- and Half-duplex functions for all 10/100/1000 Mbps ports, operating at 10 or 100 Mbps.
- Store-and-Forward transmission to remove bad packets from the network
- Advance cable fault detection service for trouble-shooting gigabit Ethernet cable plant problem (GSM712F)
- Active flow control to minimize packet loss/frame drops:
 - Half-duplex back-pressure control (10 or 100 Mbps)
 - Full-duplex IEEE 802.3x pause frame flow control
- LED indicators for port status monitoring:
 - Power LED to indicate power on/off status
 - Link LED to indicate link status

- Dual-color Mode LED to indicate speed, activity, duplex mode, and collision
- Easy migration from existing 10 Mbps network to 100 Mbps Fast Ethernet network and Gigabit Ethernet.
- Easy upgrade path to add gigabit technology to your network
- Flexible installation:
 - Standalone desktop installation
 - 19-inch standard rack-mount
- Standard 1U case size

Package Contents

Figure 1-1 shows the package contents of the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch.

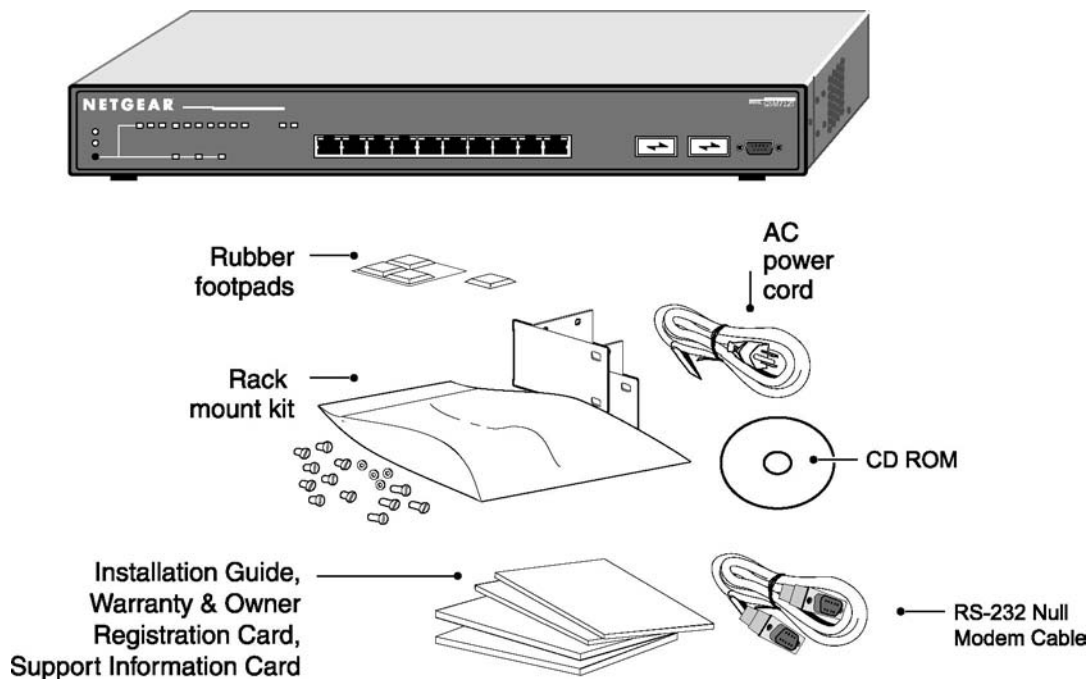


Figure 1-1. GSM712 Package Contents

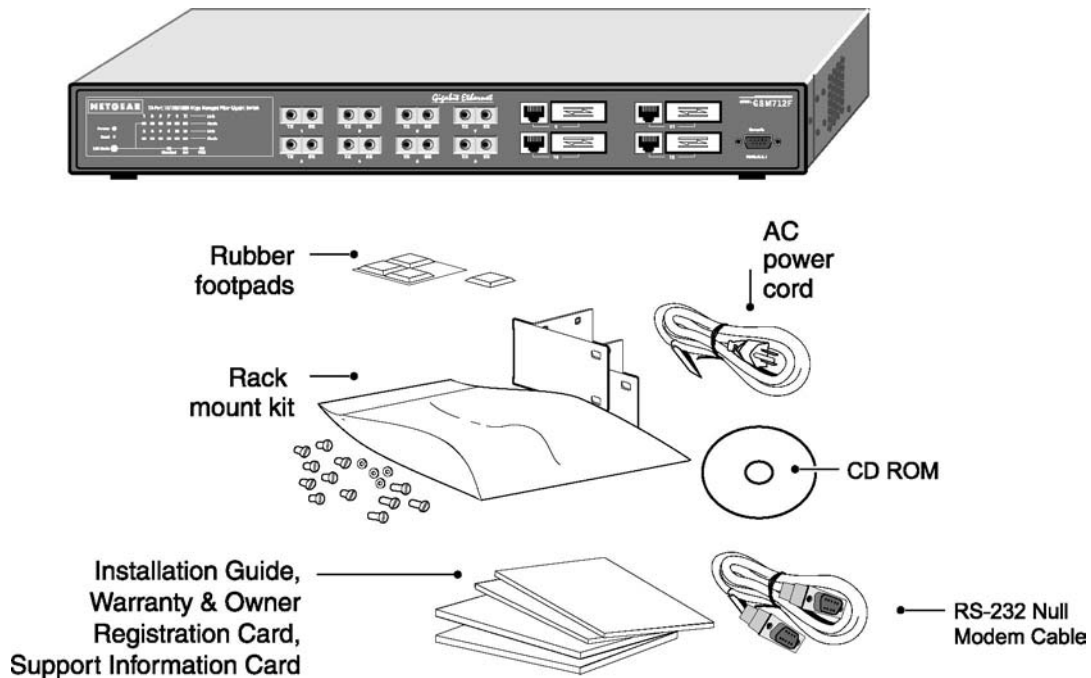


Figure 1-2. GSM712F Package Contents

Verify that your package contains the following:

- One GSM712/GSM712F Managed Gigabit Switch
- Rubber footpads for tabletop installation
- Power cord
- One null-modem cable
- Rack-mount kit for installing the switch in a 19-inch rack
- This user’s guide
- One CD ROM
- Support Information Card
- Warranty & Owner Registration Card

If you ordered additional GBIC modules with your switch, they are provided in a separate package.

If any item is missing or damaged, contact your place of purchase immediately.

CHAPTER 2: PHYSICAL DESCRIPTION

This chapter describes the hardware features of the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch. Topics include:

- Front and back panels
- 10/100/1000 Mbps auto-sensing RJ-45 ports
- Fiber ports (GSM712F)
- GBIC module bays
- LED descriptions
- Console port

Front and Back Panels

Figures 2-1 and 2-2 show the key components on the front and back panels of the NETGEAR Model GSM712 Managed Gigabit Switch.

The front panel contains LEDs, Rest Button, RJ-45 jacks, GBIC module bays, and a console port. The back panel has a standard AC power receptacle for accommodating the supplied power cord.



Figure 2-1. Front Panel of the GSM712 Managed Gigabit Switch



Figure 2-2. Back Panel of the GSM712 Managed Gigabit Switch

Figures 2-3 and 2-4 show the key components on the front and back panels of the NETGEAR Model GSM712F Managed Switch

The front panel contains LEDs, RJ-45 jacks, Fiber ports, and GBIC module bays, and a console port. The back panel has a standard AC power receptacle for accommodating the supplied power cord.

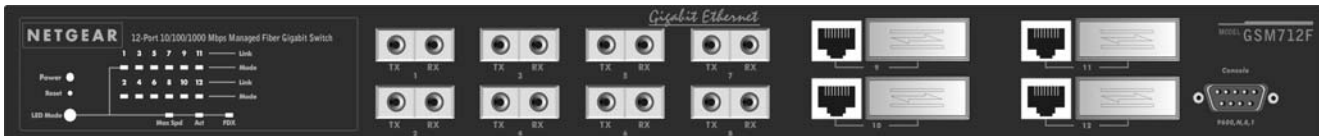


Figure 2-3. Front Panel of the GSM712F Managed Switch



Figure 2-4. Back Panel of the GSM712F Managed Switch

10/100/1000 Mbps RJ-45 Ports

As Figure 2-1 shows, the GSM712/GSM712F Managed Gigabit Switch has 10 10/100/1000 Mbps RJ-45 ports. These ports are auto-sensing 10/100/1000 Mbps ports: When you insert a cable into an RJ-45 port, the switch automatically ascertains the maximum speed (10 or 100 or 1000 Mbps) and duplex mode (half- or full-duplex) of the attached device. The 10/100/1000 Mbps ports support only unshielded twisted-pair (UTP) cable terminated with an 8-pin RJ-45 plug.

To simplify the procedure for attaching devices, all RJ-45 ports support Auto Uplink. This technology lets you attach devices to the RJ-45 ports using either straight-through or crossover cables. When you insert a cable into the switch's RJ-45 port, the switch automatically:

- Senses whether the cable is a straight-through or crossover cable.
- Determines whether the link to the attached device requires a “normal” connection (such as when connecting the port to a PC) or an “uplink” connection (such as when connecting the port to a router, switch, or hub).
- After ascertaining this information, the switch automatically configures the RJ-45 port to enable communications with the attached device, without requiring user intervention. In this way, the Auto Uplink technology compensates for setting uplink connections, while eliminating concern about whether to use crossover or straight-through cables when attaching devices.

Warning! You must use Link Aggregation (a.k.a. Port Trunking) to create multiple links between switches. Using Auto Uplink to create multiple active paths between any two network devices can cause undesirable loops in the network, resulting in an endless broadcast traffic that disables your network. Loops occur when there are alternate routes between two network devices. In Figure 2-3, for example, a loop is created by connecting two RJ-45 ports on a NETGEAR Model GSM712 Managed Gigabit Switch to a router containing a 4-port switch. The Spanning Tree protocol will prevent loops, if that advanced feature is enabled.

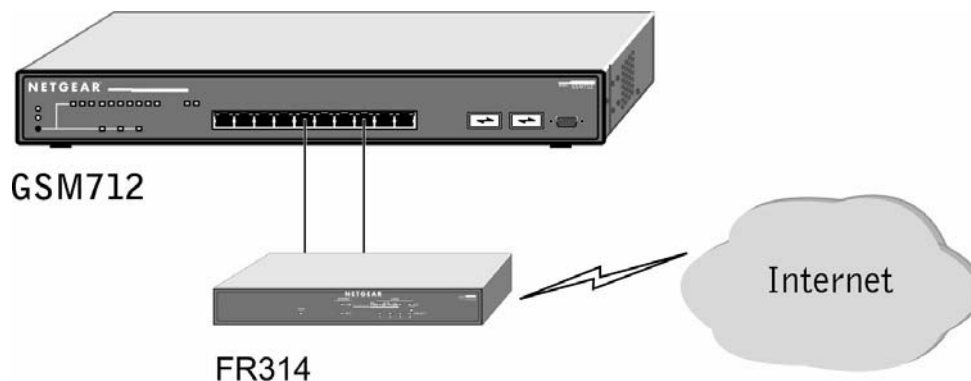


Figure 2-5. Warning! Creating Redundant Paths between Network Devices

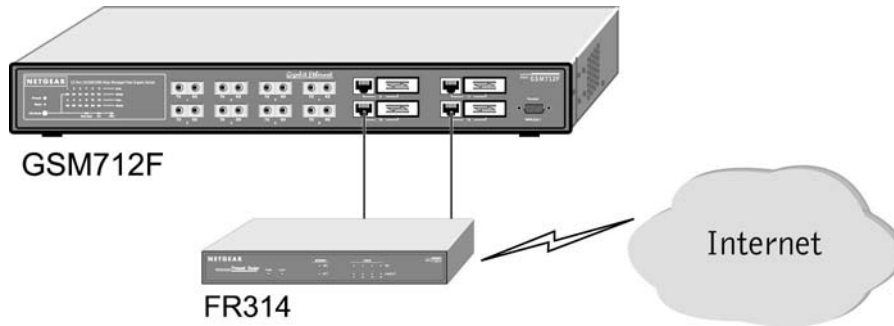


Figure 2-6. Warning! Creating Redundant Paths between Network Devices

Gigabit Ethernet Ports (RJ-45 and GBIC Module Bays)

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch has either 1000BASE-T port or as a GBIC module bay. The default setting for those ports are for the automatic detection of media being used. Which means depend on which connector is used, the port type will be set automatically. Or they can be selected via management interface configuration. The Gigabit Ethernet ports provide a full-duplex 1000 Mbps (1 Gbps) connection that effectively doubles throughput to 2 Gbps.

The GBIC bay accommodates a standard GBIC module, such as the NETGEAR AGM721F GBIC module or the AGM721T GBIC module. The AGM721F GBIC module has an SC connector that is compatible with the IEEE 802.3z 1000BASE-SX standard, while the AGM721T has an RJ-45 connector and is compliant with the IEEE 802.3ab 1000BASE-T standard.

LED Descriptions

The front panel of the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch has LEDs that provide a quick and accurate display of port speed, activity, collisions, and duplex mode. Table 2-1 summarizes the LEDs on the switch and Gigabit Ethernet module.

Table 2-1. Front Panel LEDs:

Label	Color	Activity	Description
Power	Green Yellow	On	Power is supplied to the switch.
		On	Power On Self Test (POST) in progress
		Off	Power is disconnected
Link (the port number)	Green	On	Port has a valid link connection.
		Off	A valid link has not been established on the port.
LED Mode in (Three LEDs)			
Max Spd	Green	On	Port has made a connection at 1000 Mbps for that port.
		Off	Port is not operating at 1000 Mbps.
ACT	Green	Blinking	Data transmission is occurring on the port.
		Off	No data transmission is occurring on the port.
FDX	Green Yellow	On	Port is operating in full-duplex mode.
		On	Port is operating in half-duplex mode.
		Blinking	Collision is occurring.

Note: When Copper GBIC is used at forced speed mode, link and FDX LEDs are "on" regardless if RJ45 port is connected.

Console Port

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch has a console port on the front panel. This port is labeled **Console** and is **required for initial configuration** of the switch. It also lets you manage the switch using a directly connected VT-100 terminal, personal computer (PC), Apple Macintosh, or UNIX workstation. The terminal, computer, or workstation connects to the console port using the null-modem cable supplied with your switch.

The console port is configured to use the following settings:

- Baud rate: 9,600 bps
- Data bits: 8
- Parity: none
- Stop bit: 1
- Flow control: none

These settings appear below the connector on the switch front panel.

In addition to using the console port, you can manage the switch using a Web browser and/or a Simple Network Management Protocol (SNMP) management program.

Note: You must use the console port for the initial switch configuration.

For more information about console-port connections, see “Connecting to the Console Port”. For more information about managing the switch, see Chapter 3.

CHAPTER 3: INSTALLATION

This chapter describes the installation procedures for your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch. Switch installation involves the following steps:

- Step 1: Preparing the site
- Step 2: Installing the switch
- Step 3: Installing a GBIC module
- Step 4: Checking the installation
- Step 5: Applying AC power
- Step 6: Connecting to the console port to manage the switch (initial configuration)
- Step 7: Connecting devices to the switch

Step 1: Preparing the Site

Before you install your switch, be sure your operating environment meets the operating environment requirements in Table 3-1.

Table 3-1. Site Requirements

Characteristics	Requirements
Mounting Desktop installations: Rack-mount installations:	Provide a flat table or shelf surface. Use a 19-inch (48.3-centimeter) EIA standard equipment rack that is grounded and physically secure. You also need the rack-mount kit supplied with your switch.
Access	Locate the switch in a position that lets you access the front panel RJ-45 ports, view the front panel LEDs and power connector.
Power source	Provide a power source within 6 feet (1.8 meters) of the installation location. Power specifications for the switch are shown in Appendix C. Be sure the AC outlet is not controlled by a wall switch, which can accidentally turn off power to the outlet and the switch.
Environmental Temperature:	Install the switch in a dry area, with ambient temperature between 0 and 40°C (32 and 104°F). Keep the switch away from heat sources such as direct sunlight, warm air exhausts, hot-air vents, and heaters.
Operating humidity:	The installation location should have a maximum relative humidity of 90%, non-condensing.
Ventilation:	Do not restrict airflow by covering or obstructing air inlets on the sides of the switch. Keep at least 2 inches (5.08 centimeters) free on all sides for cooling. Be sure there is adequate airflow in the room or wiring closet where you intend to install the switch.
Operating conditions:	Keep the switch at least 6 ft (1.83 m) away from nearest source of electromagnetic noise, such as a photocopy machine.

Step 2: Installing the Switch

You can install your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch on a flat surface or in a standard 19-inch rack.

Installing the Switch on a Flat Surface

The switch ships with four self-adhesive rubber footpads. Stick one rubber foot pad on each of the four concave spaces on the bottom of the switch. The rubber footpads cushion the switch against shock/vibrations.

Installing the Switch in a Rack

To install the switch in a rack, use the following procedure (and refer to Figure 3-1). To perform this procedure, you need the 19-inch rack-mount kit supplied with your switch.

1. Attach the supplied mounting brackets to the side of the switch.
2. Insert the screws provided in the rack-mount kit through each bracket and into the bracket mounting holes in the switch.
3. Tighten the screws with a #1 Phillips screwdriver to secure each bracket.
4. Align the mounting holes in the brackets with the holes in the rack, and insert two pan-head screws with nylon washers through each bracket and into the rack.
5. Tighten the screws with a #2 Phillips screwdriver to secure the switch in the rack.
6. If you want to install a GBIC module, proceed to “Step 3: Installing a GBIC Module,” next. Step 4: Checking the Installation.”



Figure 3-1. Attaching Mounting Brackets

Step 3: Installing a GBIC Module

The following procedure describes how to install a GBIC Gigabit Ethernet module, such as the NETGEAR AGM721F, in the switch's Gigabit module bays. The AGM721F is sold separately from the GSM712/GSM712F. If you do not want to install a GBIC module at this time, skip this procedure.

To install a GBIC module:

7. Insert the GBIC module into the GBIC module bay. Press firmly to ensure the module seats into the connector.

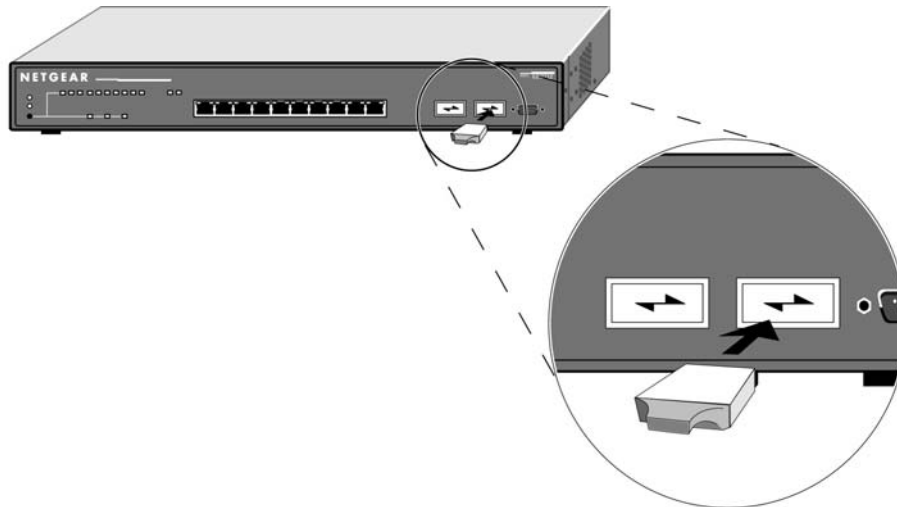


Figure 3-2. Installing a Gigabit Ethernet Module

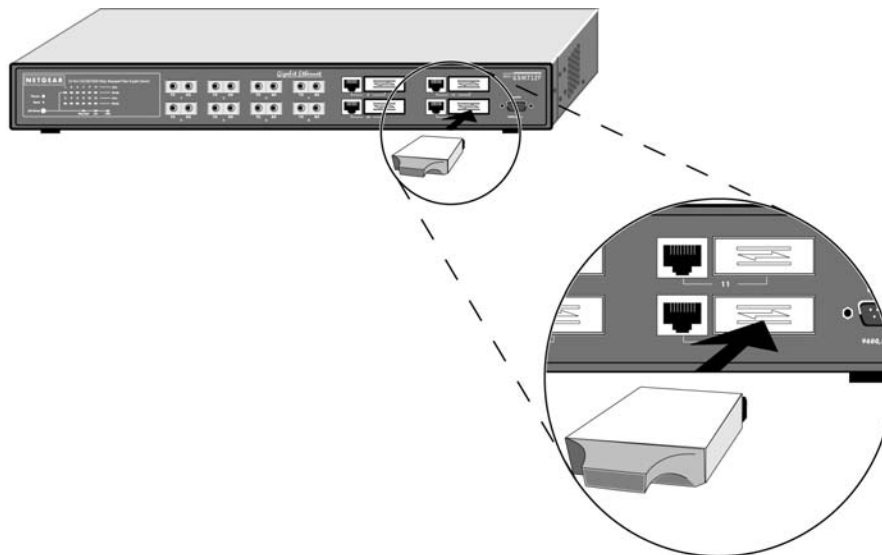


Figure 3-3. Installing a Gigabit Ethernet Module

Step 4: Checking the Installation

Before you apply power:

- Inspect the equipment thoroughly.
- Verify that all cables are installed correctly.
- Check cable routing to make sure cables are not damaged or are a safety hazard.
- Be sure all equipment is mounted properly and securely.

Step 5: Applying AC Power

NETGEAR Model GSM712/GSM712F Managed Gigabit Switches do not have an ON/OFF switch; the only method of applying or removing AC power is by connecting or disconnecting the power cord. Before you connect the power cord, select an AC outlet that is not controlled by a wall switch, which can turn off power to the switch. After you select an appropriate outlet, use the following procedure to apply AC power.

8. Connect the female end of the supplied AC power adapter cable to the power receptacle on the back of the switch.
9. Connect the 3-pronged end of the AC power adapter cable to a grounded 3-pronged AC outlet.

When you apply power, the **Power** LED on the switch's front panel will be Yellow, as it conducts a Power On Self Test (POST). After the switch passes the POST, the **Power** LED will change to Green and the switch is functional and ready to pass data.

If the **Power** LED does not go on, check that the power cable is plugged in correctly and that the power source is good. If this does not resolve the problem, refer to Appendix B, Troubleshooting.

Step 6: Connecting to the Console Port to Manage the Switch (initial configuration)

Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch contains software for viewing, changing, and monitoring the way it works. This management software is not required for the switch to work. However, the management software can let you improve the efficiency of the switch and, as a result, improve its overall performance as well as the performance of your network. The remainder of this section describes how to initialize the management software to the first time you use the management features.

After you power-up the switch for the first time, you can configure it using a VT100/ANSI terminal or a PC, Apple Macintosh, or UNIX workstation that is directly connected to the switch's console port. Thereafter, you can assign an IP address, subnet mask, and gateway address to the switch and manage it through a Web browser, Telnet session, or SNMP management application.

To connect a console to the switch:

10. Connect a VT100/ANSI terminal or a PC, Apple Macintosh, or UNIX workstation to the switch's console port, labeled Console, using the null-modem cable supplied with the switch. The supplied null-modem cable has 9-pin connectors on each end.
11. If you attached a PC, Apple Macintosh, or UNIX workstation, start a terminal-emulation program.
 - Microsoft Windows users can use HyperTerminal, which comes with the Windows operating systems.
 - Macintosh users can use ZTerm.
 - UNIX users can use a terminal emulator such as TIP.
12. Configure the terminal-emulation program to use the following settings:
 - Baud rate: 9,600 bps
 - Data bits: 8
 - Parity: none
 - Stop bit: 1
 - Flow control: none

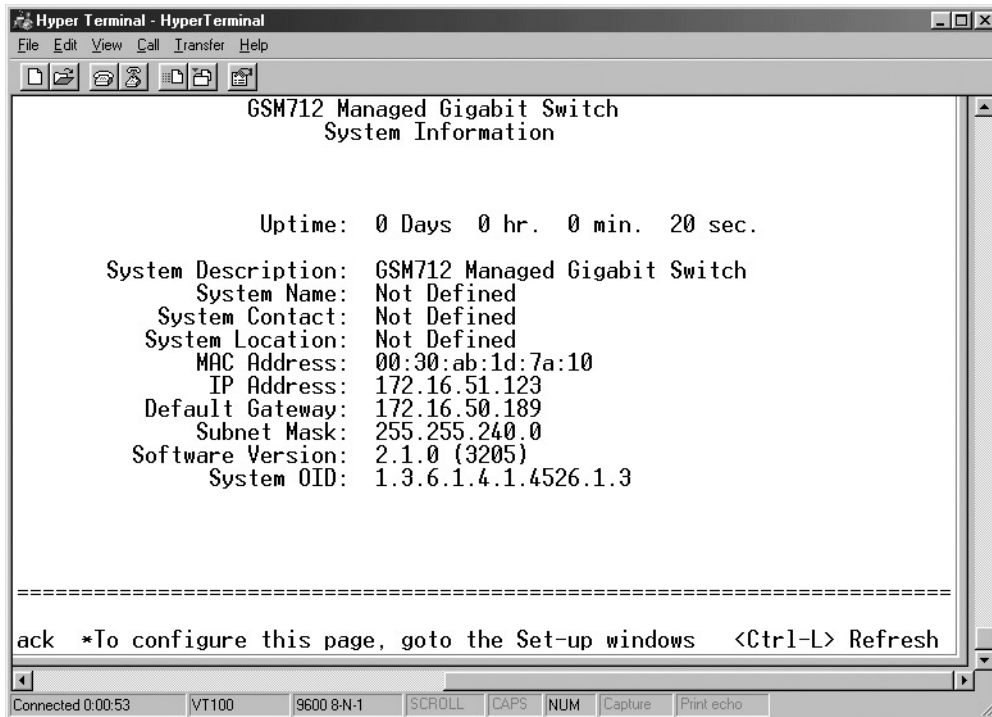


Figure 3-4. System Information

13. The terminal-emulation program should display the System Description page. Hit the 'ESC' key to get to the Main Menu page.

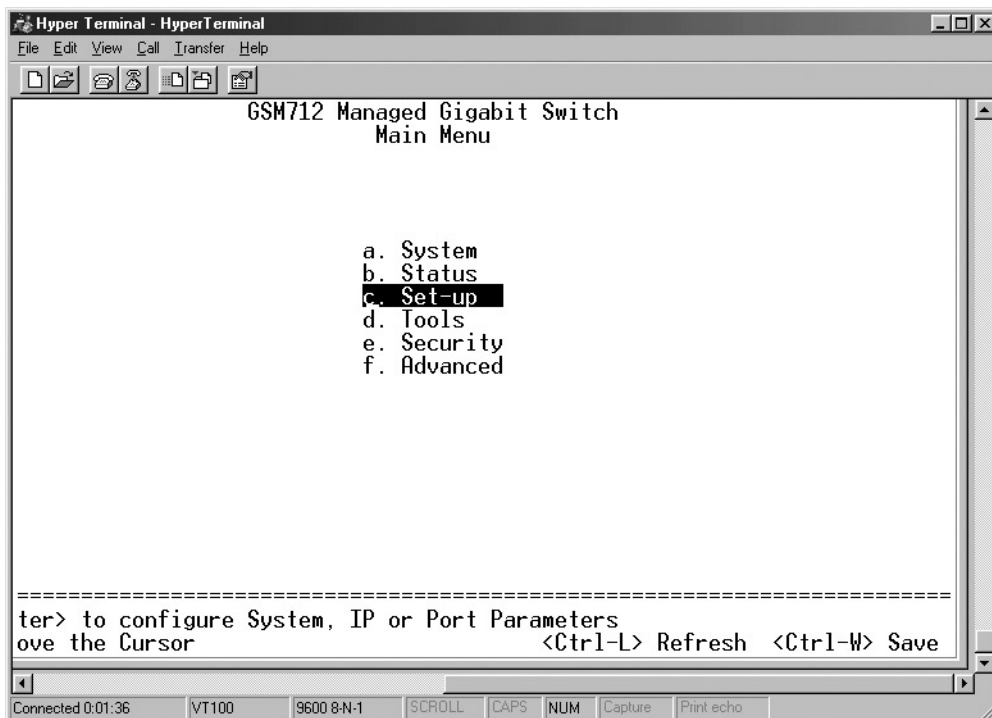


Figure 3-5. Main Menu

14. On the Main Menu page, hit the 'C' key to select the Set-Up page.

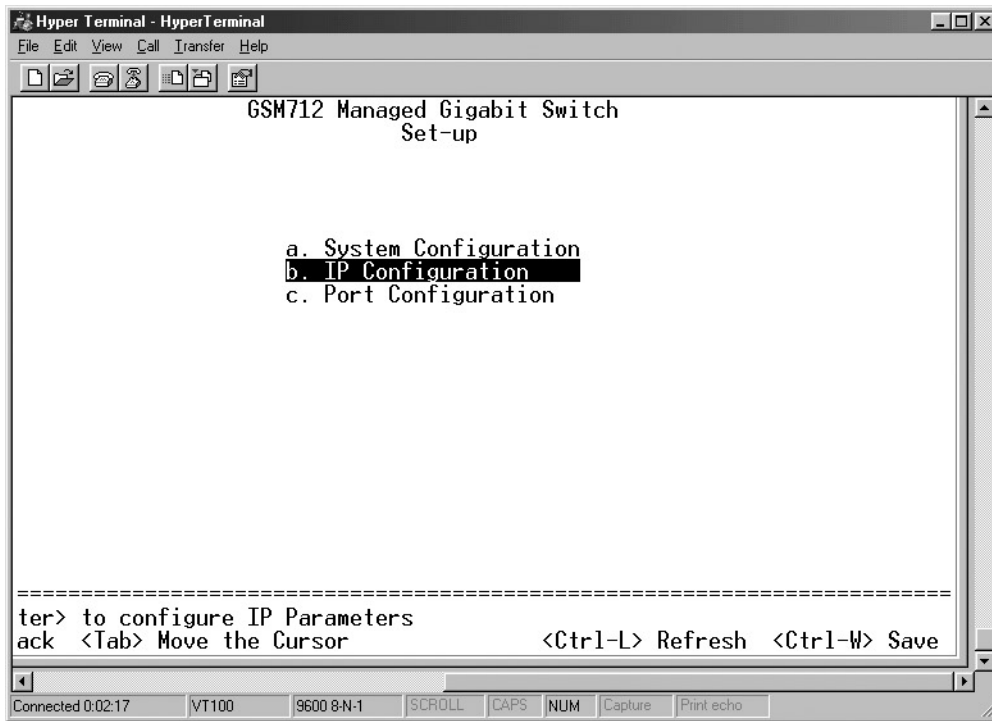


Figure 3-6. Set-Up

15. On the Set Up page, hit the 'B' key to select the IP Configuration page.

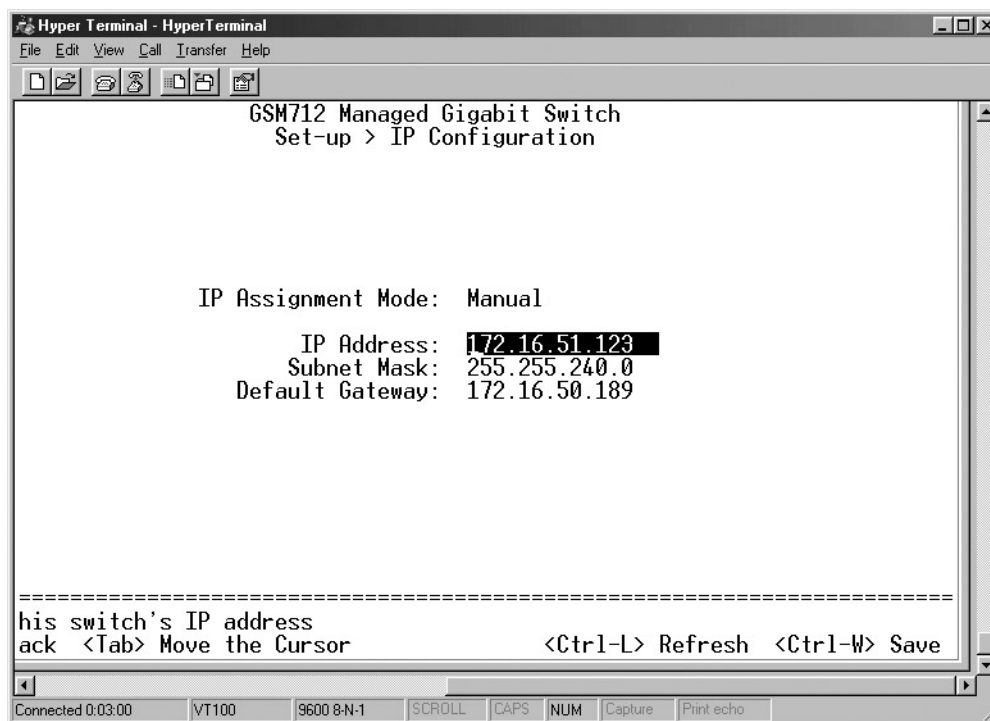


Figure 3-7. IP Configuration

16. On the IP Configuration page, type in the desired IP Address for this switch, followed by the 'Enter' key.
17. Now type in the desired Network Mask, followed by the 'Enter' key.
18. Now type in the desired Default Gateway, followed by the 'Enter' key.
19. Use Ctrl-W to save these new settings. Hit the 'Y' key or 'Enter' to confirm saving the new settings to NVRAM.

The switch will now reset, loading the new IP address. At this point you can use your web browser to manage your switch through the network. After you have connected your computer to the switch via one of the network ports, simply launch your web browser and type the IP address in the Address Bar to use the Graphical User Interface (GUI) for configuration, observation, and management of your switch.

Step 7: Connecting Devices to the Switch

The following procedure describes how to connect devices to the switch's RJ-45 ports. Your NETGEAR Model GSM712/GSM712F Managed Gigabit Switch contains Auto Uplink™ technology, which allows you to attach devices using either straight-through or crossover cables.

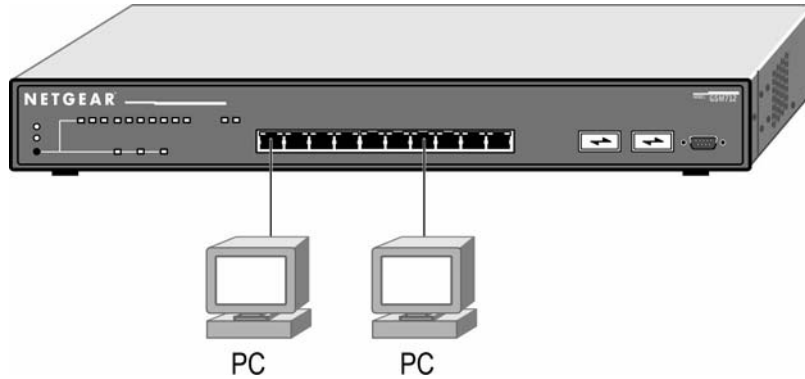


Figure 3-8. GSM712 Connecting Devices to the Switch

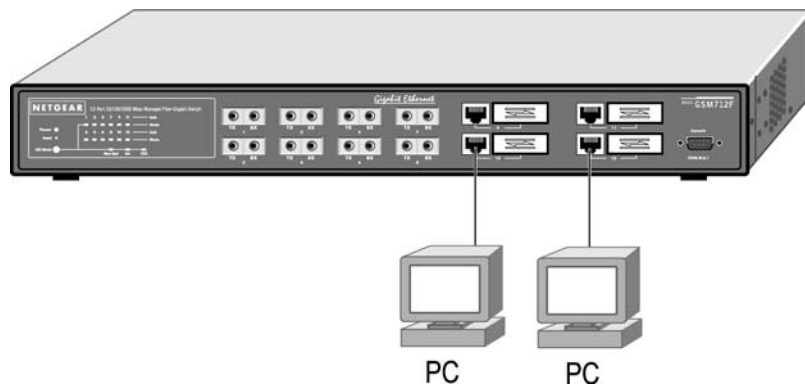


Figure 3-9. GSM712F Connecting Devices to the Switch

20. Connect each device to an RJ-45 network port on the switch's front panel (see Figure 3-8 or Figure 3-9). Use Category 5 (Cat5) unshielded twisted-pair (UTP) cable terminated with an RJ-45 connector to make these connections.

Note: Ethernet specifications limit the cable length between the switch and the attached device to 100 m (328 ft).

APPENDIX A: TECHNICAL SPECIFICATIONS

This appendix provides technical specifications for the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch.

Network Protocol and Standards Compatibility

IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.3z 1000BASE-SX
IEEE 802.3ab 1000BASE-T
IEEE 802.3x flow control

Management

IEEE 802.1Q Static VLAN (Up to 64)
IEEE 802.1p Class of Service (CoS)
IEEE 802.1D Spanning Tree Protocol
IEEE 802.1ad Link Aggregation Control Protocol (LACP)
IGMP v1, v2 Snooping Support
Port Mirroring support
SNMP v1
RFC1757 RMON groups 1, 2, 3, and 9
RFC1213 MIB II
RFC1643 Ethernet Interface MIB
RFC1493 Bridge MIB
Private Enterprise MIB

Interface

GSM712

10 RJ-45 connectors for 10BASE-T, 100BASE-TX, and 1000BASE-T (Auto Uplink™ on all ports)
2 Gigabit Interface Converter (GBIC) slots for GBIC modules
RS-232 Console Port

GSM712F

4 RJ-45 connectors for 10BASE-T, 100BASE-TX, and 1000BASE-T (Auto Uplink™ on all ports)
4 Gigabit Interface Converter (GBIC) slots for GBIC modules
8 Fiber ports
RS-232 Console Port

LEDs

Per port (10/100/1000 and Gigabit): Link, Mode (Max Speed, Activity, Full Duplex)
Per device: Power, Reset

Performance Specifications

Forwarding modes: Store-and-forward
Bandwidth: 24 Gbps (Non-blocking)
Network latency: Less than 80 microseconds for 64-byte frames in store-and-forward mode for 10 Mbps to 100 Mbps transmission
10/100/1000 buffer memory: 735 KB embedded memory for 10 ports
Gigabit buffer memory: 122 KB embedded memory per port
Address database size: 8,000 media access control (MAC) addresses per system
Addressing: 48-bit MAC address
Acoustic noise: (ANSI-S10.12) 45 dB
Heat Dissipation: 18.99 Btu/hr
Mean Time Between Failure (MTBF): 58,300 hours (~ 6.5 years)

Power Supply

Power Consumption: 36 W maximum
100-240VAC/50-60 Hz universal inputs

Physical Dimensions

440 x 253 x 43 mm (W x D x H)
17.32 x 9.96 x 1.7 inch

Environmental Specifications

Operating temperature: 0 to 40°C
Storage temperature: -20 to 70°C
Operating humidity: 90% maximum relative humidity, non-condensing
Storage humidity: 95% maximum relative humidity, non-condensing
Operating altitude: 10,000 ft (3,000 m) maximum
Storage altitude: 10,000 ft (3,000 m) maximum

Electromagnetic Emissions

CE mark, commercial
FCC Part 15 Class A
VCCI Class A
EN 55022 (CISPR 22), Class A
C-Tick

Electromagnetic Immunity

EN 50082-1
EN 55024

Safety

CE mark, commercial
CSA certified (CSA 22.2 #950)
TUV licensed (EN 60 950)
UL listed (UL 1950)/CUL IEC950/EN60950

Modules

AGM721F GBIC SX module for 1000BASE-SX connections with SC connectors for 50um or 62.5um multi-mode fiber cable
AGM721T GBIC Copper Gigabit module for 1000BASE-T connections with an RJ-45 connector and Cat5 or better cable

APPENDIX B: TROUBLESHOOTING

This chapter provides information about troubleshooting the NETGEAR Model GSM712/GSM712F Managed Gigabit Switch. Topics include:

- Troubleshooting chart
- Additional troubleshooting suggestions

Troubleshooting Chart

Table B-1 lists symptoms, causes, and solutions of possible problems.

Table B-1. Troubleshooting Chart

Symptom	Cause	Solution
Power LED is off.	No power is received	Check the power cord connections for the switch at the switch and the connected device. Make sure all cables used are correct and comply with Ethernet specifications.
Link LED is off or intermittent.	Port connection is not working.	Check the crimp on the connectors and make sure that the plug is properly inserted and locked into the port at both the switch and the connecting device. Make sure all cables used are correct and comply with Ethernet specifications. See Appendix F. Check for a defective adapter card, cable, or port by testing them in an alternate environment where all products are functioning.
File transfer is slow or performance degradation is a problem.	Half- or full-duplex setting on the switch and the connected device are not the same.	Make sure the attached device is set to auto negotiate.
A segment or device is not recognized as part of the network.	One or more devices are not properly connected, or cabling does not meet Ethernet guidelines.	Verify that the cabling is correct. Be sure all connectors are securely positioned in the required ports. Equipment may have been accidentally disconnected.
FDX LED is blinking yellow excessively.	Collisions are occurring on the connected segment. Duplex modes are mismatched.	Some collisions are normal when the connection is operating in half-duplex mode. Recheck the settings of the device attached to the RJ-45 port. Make sure the attached device is set to auto negotiate.
ACT LED is flashing continuously on all connected ports and the network is disabled	A network loop (redundant path) has been created (see Figure 2-3).	Break the loop by ensuring that there is only one path from any networked device to any other networked device.

Additional Troubleshooting Suggestions

If the suggestions in Table B-1 do not resolve your problem, refer to the troubleshooting suggestions in this section.

Network Adapter Cards

Make sure the network adapter cards installed in the PCs are in working condition and the software driver has been installed.

Configuration

If problems occur after altering the network configuration, restore the original connections and determine the problem by implementing the new changes, one step at a time. Make sure that cable distances, repeater limits, and other physical aspects of the installation do not exceed the Ethernet limitations.

Switch Integrity

If required, verify the integrity of the switch by resetting the switch. To reset the switch, use the Tools> Reset command or remove AC power from the switch and then reapply AC power. If the problem continues, contact NETGEAR technical support. In North America, call 1-888-NETGEAR. If you are outside of North America, please refer to the support information card included with your product.

Auto Negotiation

The 10/100/1000 Mbps ports negotiate the correct duplex mode and speed if the device at the other end of the link supports auto negotiation. If the device does not support auto negotiation, the switch only determines the speed correctly and the duplex mode defaults to half-duplex. The gigabit port on the Gigabit module negotiates speed, duplex mode, and flow control, provided that the attached device supports auto-negotiation.

APPENDIX C: Default Settings

This appendix provides the default settings for the NETGEAR Model GSM712/GSM712F Managed Stackable Switch.

Feature	GSM712/GSM712F Default Setting
Port Speed	Auto-negotiation
Port Duplex	Auto-negotiation
Flow Control (half duplex)	Enabled
Flow Control (full duplex)	Enabled
IP Configuration	DHCP enabled
Password protection	Disabled
User Name	Admin
Password	password
VLAN	All ports belong to Default VLAN (VLAN 1) as untagged ports
IP Multicast Filtering	Disabled
Spanning Tree Protocol	Enabled
Fast Link	Enabled
Traffic Prioritization 802.1p DiffServe	Optimized for flow control, all ports normal priority 0-31 normal priority, 32 – 63 high priority
MAC address aging	300 seconds
SNMP Community	Public (you must add application to Host table before switch will respond to SNMP requests)

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